

# FLOWPRESS™ SINGLE-USE PRESSURE SENSOR:

Performance Testing with PendoTech® PressureMAT®



 919.635.8438

 [www.carolinaflow.com](http://www.carolinaflow.com)

 [customerservice@carolinaflow.com](mailto:customerservice@carolinaflow.com)



## UNPARALLELED ACCURACY

The FlowPress™ single-use pressure sensor was evaluated for its compatibility and performance with industry-leading transmitters, including the PendoTech® PressureMAT®. Testing focused on accuracy, reliability, and ease of integration, comparing results to PendoTech® pressure sensors. FlowPress™ delivers precise pressure readings across a range of operating conditions, achieving an accuracy of  $\pm 2\%$  from 0–30 psi,  $\pm 4\%$  from 31–80 psi, and  $\pm 5\%$  from 81–100 psi. The findings confirm that FlowPress™ matches the performance of PendoTech® sensors offering seamless compatibility, maintaining exceptional data integrity and operational advantages.

## SEAMLESS INTEGRATION

Engineered for versatility, the FlowPress™ sensor integrates effortlessly with PendoTech® PressureMAT® transmitters. Its universal compatibility ensures minimal setup effort while delivering optimal performance, making it an excellent replacement or alternative to incumbent solutions.

### Key features supporting integration include:

- ◆ **Excitation Voltage Range:** 2–10 VDC for adaptable operation.
- ◆ **Configurations:** Available in 1/8" to 3/4" hose barbs and 3/4" or 1.5" TC flange, allowing easy incorporation into various setups.
- ◆ **NIST Calibration:** Options include certifications for 0–10 psi, 0–30 psi, and 0–80 psi ranges, ensuring accuracy across multiple application requirements.

## BUILT FOR BIOPROCESSING

The FlowPress™ sensor is purpose-built for single-use applications, offering:

- ◆ **Cross-Contamination Prevention:** Disposable design for sterility and safety.
- ◆ **Durability:** Constructed from robust polysulfone material with broad chemical resistance and gamma sterilization compatibility.
- ◆ **Regulatory Compliance:** Meets USP <85>, USP <788>, and ISO 10993-5 standards, among others.

## ENHANCED WORKFLOW EFFICIENCY

With its user-friendly design and compatibility with high-performance transmitters, the FlowPress™ sensor reduces operational complexity while providing the reliability and accuracy essential for critical bioprocess workflows.

## TESTING METHODOLOGY

**Objective:** To validate the accuracy and integration of FlowPress™ with PendoTech® PressureMAT® transmitters, ensuring comparable results to PendoTech® sensors.

### Procedure:

- ◆ Sensors from three different lots were tested across pressure ranges of 0–70 psi using controlled bioprocess fluid systems.
- ◆ Calibration data was collected at incremental pressure points and analyzed for deviations.
- ◆ Integration times, ease of setup, and stability were recorded.

### Parameters Monitored:

- ◆ Accuracy (deviation from true pressure)
- ◆ Stability of readings over time
- ◆ Integration response with each transmitter



## RESULTS SUMMARY:

### Accuracy Across Pressure Ranges:

PRESURE RANGE	PENDOTECH® READING	FLOWPRESS™ READING (3 LOTS)	DEVIATION FROM PENDOTECH (%)
0.00	0.00	0.00	0.00
5.00	6.40	6.30	1.61
10.00	11.15	11.08	0.60
15.00	15.88	15.87	0.08
20.00	20.85	20.65	0.96
25.00	25.45	25.44	0.05
30.00	30.26	30.22	0.12
35.00	35.57	35.01	1.58
40.00	39.76	39.80	0.09
45.00	44.65	44.58	0.16
50.00	49.20	49.37	0.34
55.00	54.05	54.15	0.19
60.00	58.92	58.94	0.03
65.00	63.40	63.72	0.51
70.00	68.10	68.51	0.60

### Stability Performance:

TEMPERATURE: 5°C		
	PENDOTECH® READING (PSI)	FLOWPRESS™ READING PSI (3 LOTS)
0 min	40.30	40.49
5 min	40.22	40.40
10 min	40.19	40.37

TEMPERATURE: 22°C		
	PENDOTECH® READING (PSI)	FLOWPRESS™ READING PSI (3 LOTS)
0 min	40.75	40.35
5 min	40.66	40.24
10 min	40.64	40.20

TEMPERATURE: 40°C		
	PENDOTECH® READING (PSI)	FLOWPRESS™ READING PSI (3 LOTS)
0 min	40.28	40.47
5 min	40.20	40.36
10 min	40.16	40.33



## KEY FINDINGS:

- ◆ **Accuracy:** FlowPress™ matched PendoTech® sensors in all pressure ranges, delivering precise and reliable readings within the expected tolerances.
- ◆ **Integration:** FlowPress™ integrated seamlessly with both transmitters, demonstrating equivalent performance in setup time, data stability, and response accuracy.
- ◆ **Reliability:** Testing confirmed that FlowPress™ sensors maintain consistent performance under varied operating conditions, including temperature fluctuations (5°C to 40°C).

## CONCLUSION:

The FlowPress™ single-use pressure sensor is a robust and reliable alternative to PendoTech's pressure sensors, offering equivalent accuracy and seamless compatibility with PendoTech® PressureMAT®. With a user-friendly design, NIST-calibrated options, and performance confirmed through rigorous testing, FlowPress™ is an ideal solution for high-precision bioprocess monitoring.



The findings confirm that FlowPress™ matches the performance of PendoTech® sensors offering seamless compatibility, maintaining exceptional data integrity and operational advantages.